

Geometry Name _____
 Lesson 12: Properties of Triangles and Quadrilaterals
 Math for Standards Date _____

EQ: How are the properties of triangles and quadrilaterals useful in the real world?

The median goes from one _____ to the opposite _____.

Medians always stay _____ the figure.

An angle bisector will cut the angle in _____ (just like any other bisector).

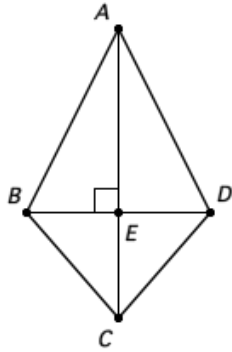
Each angle will have its own _____ that lies _____ the triangle.

An altitude will start at a _____ and be _____ to the opposite side.

Figure	Properties
Parallelogram	
Rectangle	
Rhombus	
Square	

A rectangle is also a _____, as is a rhombus. A _____ fits the qualities of a parallelogram, rectangle, and rhombus.

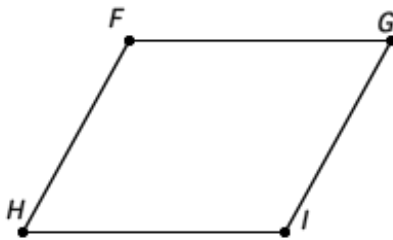
Example 1: For which triangles is \overline{AE} an altitude? Which segments could be considered medians, and for what triangles?



Example 2: Refer to the table of quadrilaterals. For each description, list the quadrilaterals that are described by the given property.

- a. A diagonal creates two congruent triangles.
- b. Diagonals bisect each other.
- c. Diagonals are congruent.
- d. Diagonals are perpendicular to each other.
- e. Diagonals bisect the angles of the quadrilateral.

Example 3: $FGIH$ is a rhombus. Find the measure of each angle.



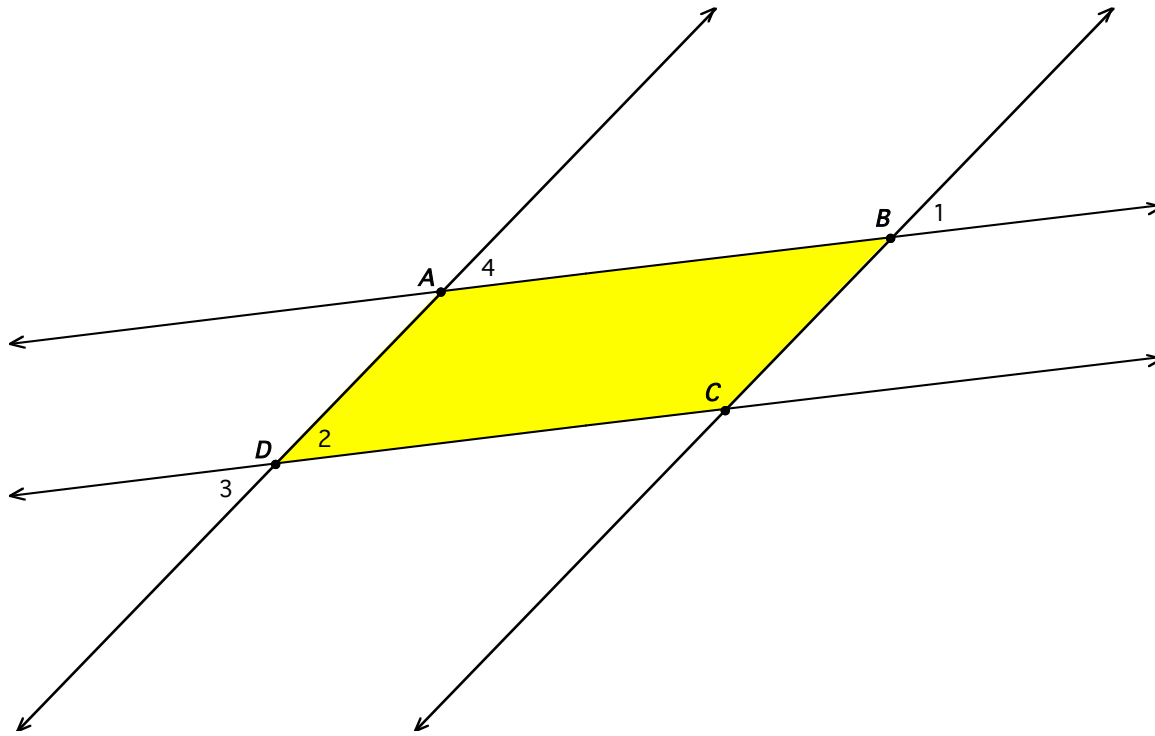
$$m\angle HFG = (9x + 7)^\circ$$

$$m\angle FGI = (4y + 37)^\circ$$

$$m\angle GIH = (7x + 31)^\circ$$

$$m\angle IHF = (8y + 9)^\circ$$

Example 4: Use a protractor to explore some relationships.



a. Measure all four interior angles of the shaded region. What relationships do you notice?

b. Measure the four numbered angles. What can be said about the relationships of those angles? Are there any other angles that would have the same measure? If so, continue numbering them 5 - ? on the figure above and state which are equal.